

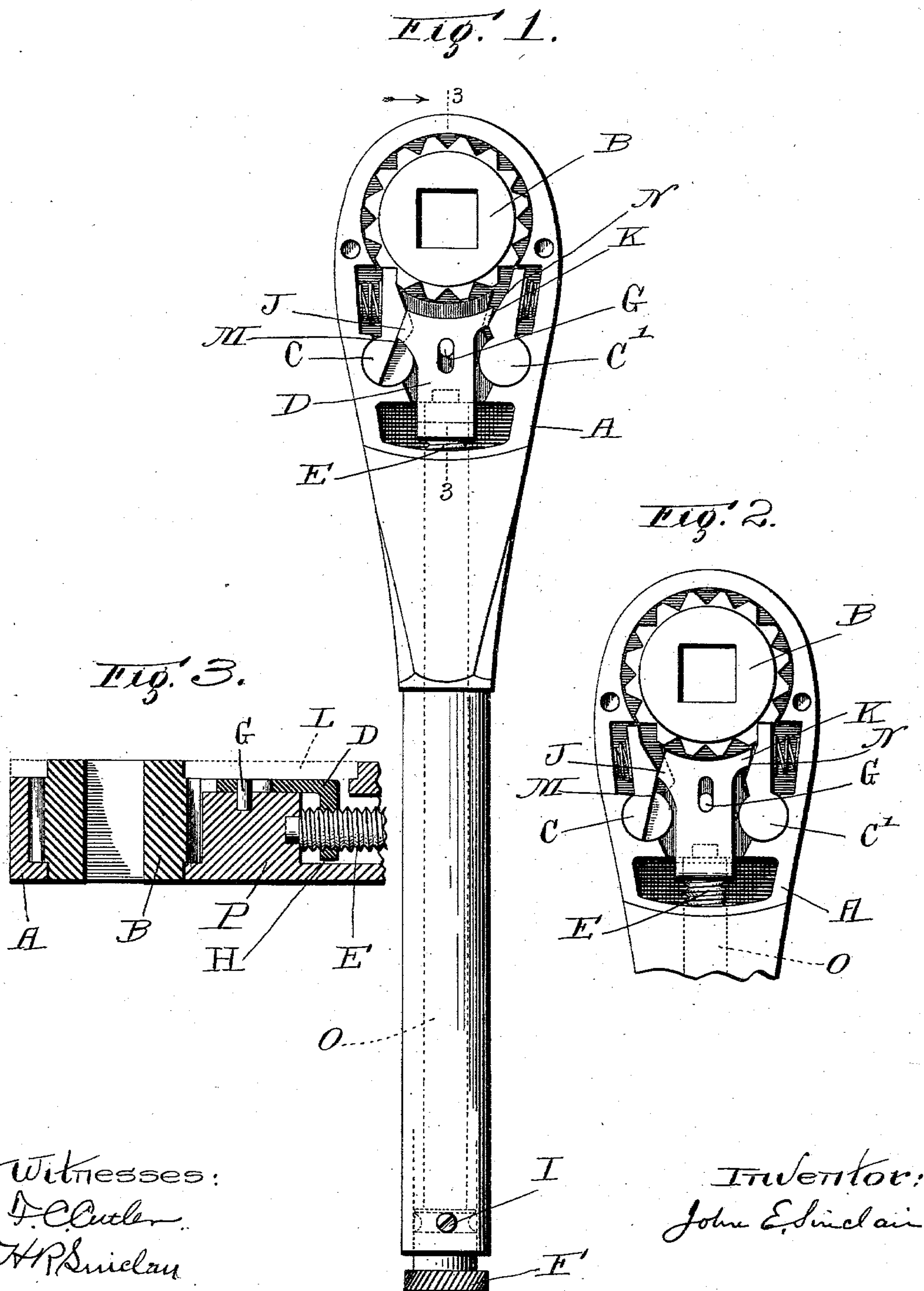
No. 743,942.

PATENTED NOV. 10, 1903.

J. E. SINCLAIR.  
RATCHET WRENCH.

APPLICATION FILED MAY 2, 1903.

NO MODEL.





## UNITED STATES PATENT OFFICE.

JOHN E. SINCLAIR, OF WORCESTER, MASSACHUSETTS.

## RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 743,942, dated November 10, 1903.

Application filed May 2, 1903. Serial No. 155,312. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN E. SINCLAIR, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented an Improvement in Ratchet-Wrenches, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to ratchet-wrenches, and has for its object to provide a novel wrench of this character wherein the pawls are both actuated by a single sliding actuator which may be manipulated from the end of the handle. For this purpose the actuator has two cam-surfaces, one of which is adapted to engage one pawl when the actuator is moved in one direction and the other of which is adapted to engage the other pawl when said actuator is moved in the other direction. To give the actuator its sliding movement, a rotary rod or stem is employed which runs longitudinally of the handle and has screw-threaded engagement with the actuator. This rod or stem is freely rotatable, but is held from longitudinal movement and projects beyond the end of the handle, the projecting end having a head by means of which it may be turned. The turning of the stem operates positively to give the actuator the sliding movement in one direction or the other, according to the direction in which the stem is turned.

In the drawings, Figure 1 is a plan view of my improved wrench with the cap-plate removed to better show the construction of the actuator. Fig. 2 is a view showing the pawls reversed from the position shown in Fig. 1; and Fig. 3 is a section on line 3 3, Fig. 1.

The stock or handle A and the socket-piece or gear B may be of any suitable construction, but preferably will be made as shown in my Patent No. 349,007, the socket-piece B having the usual teeth on its periphery, with which coöperate the spring-pressed pawls C and C'. D represents the sliding actuator, which is mounted for movement longitudinally of the stock and which by its movement operates the pawls.

I have herein shown the actuator as being situated between the pawls and as being guided in its movements by a pin G, which plays in a slot in said actuator. To enable it

to actuate the pawls, it is provided with the two cam-surfaces J and K, which are adapted to engage the pawls as the actuator is moved. These cam-surfaces are arranged at an angle to the direction of movement of the actuator and coöperate with inclined surfaces M and N on the pawls C and C', respectively, said inclined surfaces M and N being also arranged at an angle to the direction of movement of the actuator.

Upon referring to the drawings it will be seen that when the actuator is moved from the position shown in Fig. 1 to that shown in Fig. 2 the cam-surface J will engage the inclined shoulder M and throw the pawl C out of engagement with its socket-piece, and the cam-surface K will move away from this inclined surface N and will allow the pawl C' by means of its spring to be thrown into engagement with the socket-piece.

During a reverse movement of the actuator the pawl C' will be thrown out of operation and the pawl C allowed to come into operation. It is my intention so to construct the cam-surfaces J and K and the inclined surfaces M and N that one pawl will be thrown into engagement with the socket just before the other is thrown out of engagement, whereby by placing the actuator in a middle position both pawls may be brought into engagement with the socket, thus locking the latter from movement in either direction.

The actuator has a portion H, which has screw-threaded engagement with the screw-threaded portion E of a rod or stem O, which extends longitudinally of the handle and projects beyond the end thereof, said projecting end being provided with a knurled head F, by means of which it may be turned.

The inner end of the stem is journaled in the body P of the stock, as seen in Fig. 3, and some suitable means is provided to hold said stem against longitudinal movement, that herein shown being a pin or screw I, carried by the handle and engaging a groove in the stem.

By simply turning the head F in one direction or the other the actuator may be advanced or retracted according to the position into which it is desired to place the pawls. By this special construction the movement of the actuator in either direction is a positive one, and since the actuator is operated by a



stem which is inclosed in the handle there are no projecting parts which are liable to become broken. When the plate L is in place, as seen in dotted lines, Fig. 3, the working parts are all covered and protected. Moreover, the head F is situated in a very convenient position for manipulation by the operator. While I have described my invention as applied to ratchet-wrenches, it will be obvious that it is equally applicable to ratchet-drills, and hence I do not wish to limit my invention to either class of device.

Various changes may be made in the structure without departing from the invention as expressed in the appended claims.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a ratchet-wrench a handle portion, a socket-piece rotatable therein, a pair of right and left pawls to operate the socket-piece and a sliding actuator movable longitudinally of the handle and operating to disengage one pawl during its movement in one direction and the other pawl during its reverse movement.

2. In a ratchet-wrench a handle portion, a socket-piece rotatable therein, a pair of right

and left pawls to operate the socket-piece, a sliding actuator movable longitudinally of the handle and operating to disengage one pawl during its movement in one direction and the other pawl during its movement in a reverse direction, and means extending through the handle and operable from the end thereof to move said actuator.

3. In a ratchet-wrench a handle portion, a socket-piece rotatable therein, a pair of right and left pawls to operate the socket-piece and a sliding actuator movable longitudinally of the handle, said actuator having cam-surfaces occupying a position at an angle to its direction of movement, said surfaces cooperating with inclined shoulders on the pawls whereby the movement of the actuator in one direction disengages one pawl and its movement in the reverse direction disengages the other pawl.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN E. SINCLAIR.

Witnesses:

T. C. CUTLER,  
H. R. SINCLAIR.